# Transportation Analysis

Director
Traffic & Commodity Studies Section

S.P. 0209-13 TH 169 Mississippi River Bridge - Ano
TA M-302

PREPARED BY
THE MINNESOTA DEPARTMENT OF TRANSPORTATION
PLANNING DIVISION
PEOPLE AND GOODS MOVEMENT SECTION

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STATE OF MINNESOTA

DEPARTMENT OF TRANSPORTATION
Room 820

# Office Memorandum

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DATE: September 1, 1983

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SUBJECT: S.P. 0209-13 TH 169 Mississippi River Bridge - Anoka
TA M-302

Estimated year 2005 traffic volumes for TH 169 and Ferry Street in the vicinity of the TH 169 Mississippi River Bridge are enclosed. Volumes shown are based on the Metropolitan Council's year 2000 zonal level vehicle trip tables assigned to network 3-G. Minor street volume estimates are based on recent traffic count data supplied by District 5. The requested heavy commercial data and supporting evidence are discussed in a separate section of this report.

Volumes shown on the bridge are more than double current counts. The traffic estimate is a reflection of the socio-economic forecast for the traffic assignment zones north of the bridge. The details of expected growth in the Anoka County zones that provide most of the bridge traffic are shown on the accompanying table.

Projections from past traffic counts give general support to the expectation of substantial increases in traffic on the TH 169 bridge. Recent AADT volumes are as follows: 1972 - 19,795, 1974 - 21,900, 1976 - 22,050, 1978 - 25,500, 1980 - 26,200 and 1982 - 26,500. The average annual growth rate from 1972 through 1982 has been about 3% compounded. A continuation of this trend through 2005 would give a volume of about 52,000. The growth factor for the 22 year period from 1958 (volume = 12,000) to 1982 (26,500) is 2.2, which would bring the volume to over 58,000 if the same growth rate continued over the next 22 years.

There are two situations that could affect the validity of any type of growth projections on the bridge. One is the fact that a new river crossing (TH 610, the "Northtown" route) is planned between Anoka and TH 694. The 3-G network used for this forecast has the TH 610 bridge in place but no construction of the "Northtown" route beyond TH 252. Volumes at the Anoka TH 169 bridge on the 3-G network are similar to those obtained on the special "Northtown Window" network used to develop the TH 610 forecast. If TH 610 is not built, volumes would be about 10,000 higher than shown.

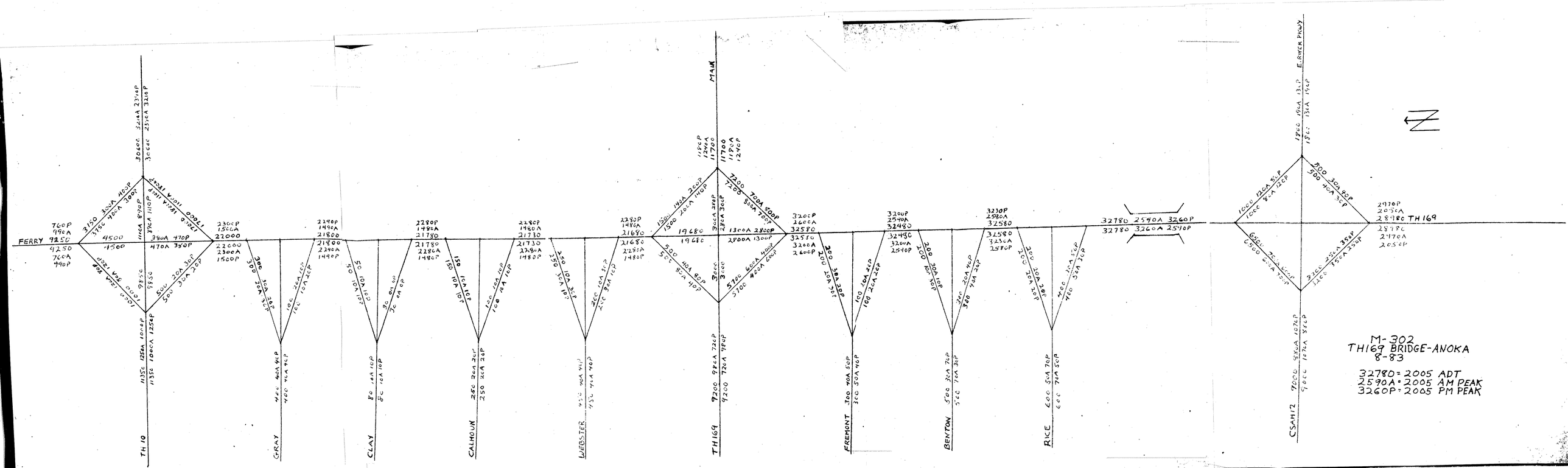


Another factor that limits the usefulness of projections is the fact that the traffic "population" of the TH 169 bridge has changed rather substantially since the completion of TH 94 in 1973. Much traffic that formerly approached the Twin Cities from the west via TH 10 and TH 169 has been diverted to TH 94. Volumes on TH 169 west of the Main Street junction have changed very little over the past 10 years, and show relatively little increase in the enclosed year 2005 forecast. Most of the increase in future traffic on the bridge is expected to come from the north on Ferry Street.

The year 2000 land use forecast does not assume saturation of all buildable land in this section of Anoka County. The average annual growth rate in vehicle trips for the enclosed forecast is about 4% per year from 1970 to 2000. After 2005, it would be reasonable to assume a slower growth rate, such as 3% per year.

The following section presents heavy commercial data for this project.

Enclosure


FERRY
TH 10
GRAY
CLAY
CALHOUN
WEBSTER
MAIN
TH169
FREMONT
BENTON
RICE
E. RIVER PKWY
CSAH 12
TH 169
M-302
TH169 BRIDGE-ANOKA
8-83
32780 = 2005 ADT
2590A = 2005 AM PEAK
3260P = 2005 PM PEAK

SOCIO-ECONOMIC AND TRIP GENERATION DATA FOR SELECTED
ANOKA COUNTY TRAFFIC ASSIGNMENT ZONES

| TAZ | Population 1970 | Population 2000 | Employment 1970 | Employment 2000 | Trip Ends* 1970 | Trip Ends* 2000 |
|---|---|---|---|---|---|---|
| 457 | 1120 | 2600 | 0 | 50 | 266 | 5935 |
| 458 | 879 | 4400 | 53 | 200 | 1214 | 10669 |
| 461 | 986 | 3640 | 3 | 100 | 8302 | 7597 |
| 462 | 984 | 5000 | 3 | 100 | 1016 | 10390 |
| 463 | 730 | 5400 | 120 | 1600 | 195 | 20653 |
| 464 | 1427 | 7400 | 119 | 1400 | 858 | 22962 |
| 465 | 330 | 1700 | 50 | 650 | 216 | 5670 |
| 466 | 2100 | 10500 | 47 | 800 | 6716 | 26132 |
| 471 | 1195 | 1937 | 1525 | 3000 | 7254 | 14135 |
| 472 | 2535 | 2937 | 634 | 1200 | 10332 | 14476 |
| 473 | 3137 | 3968 | 3163 | 5300 | 13804 | 23040 |
| 474 | 1110 | 1297 | 10 | 150 | 2391 | 3394 |
| 476 | 155 | 269 | 985 | 1200 | 8473 | 6989 |
| 477 | 5116 | 5052 | 1315 | 2000 | 20216 | 22347 |
| 478 | 437 | 930 | 530 | 1700 | 1575 | 8719 |
| 479 | 2446 | 8347 | 152 | 3500 | 4270 | 33841 |
| 480 | 6600 | 11064 | 925 | 3300 | 18096 | 41018 |

* NOTE: 1970 vehicle trip ends are based on a metropolitan area sample covering less than 1% of trip makers. Thus it is not always possible to perceive a logical relationship between 1970 trip ends and 1970 socio-economic variables on a zonal level.

## Heavy Commercial Vehicle Data

Table 2 shows heavy commercial (HC) volumes by vehicle type with year 2005 BESAL and CESAL summations. Forecasts are the result of reviewing and analyzing the following supporting data:

1) 1982 HCADT from Official State Flow Map

2) 1970-1982 vehicle type counts recorded on TH 10 just west of Anoka

3) 1980 vehicle type counts recorded on TH 169 S. of TH 252 and on TH 252 S.E. of TH 169

4) 2000 HCADT from Systems 3TE and 3TG computer loads

5) 2000 HCADT loaded link for TH 169 S. of TH 252

Chart 1 should lend perspective to the HC trip diversion from TH 10 to I-94. Since 1975, HC volumes as a percent of total vehicle volume has stabilized to a very modest or no growth condition with HC volume averaging about 700 per day. Percentages are quite similar to those shown in Table 1 for TH 169 and TH 252. The exception is in the 5ATST category where the number as well as percentage is significantly lower on TH 169 and TH 252.

A trace of year 2000 HC trips by using a loaded link for TH 169 just south of TH 152 revealed data on HC generation and trip length. North of the Mississippi River about 85 percent of HC trips are generated in the immediate area of Andover and Anoka. South of the Mississippi River about 80 percent of HC trips are generated south of I-94.

HC data west of Anoka on TH 10 and south of Anoka on TH 169 and TH 252 show similarities with a total HC percent range of 4.0 to 5.1. Computer loads for TH 169 in Anoka show HC percent range of 4.0 to 4.3. Therefore, the HC vehicle type percent used for year 2005 is as shown in Table 1.

ESAL factors for the Metro area as shown in the 1-31-82 Road Design Manual are used at this location. No additional corrections or exceptions because of:

1) Less than 1 percent TST.

2) Comparatively short distance trips.

3) High local trip generation in the Anoka area.

4) Longer trips diverting to I-94.

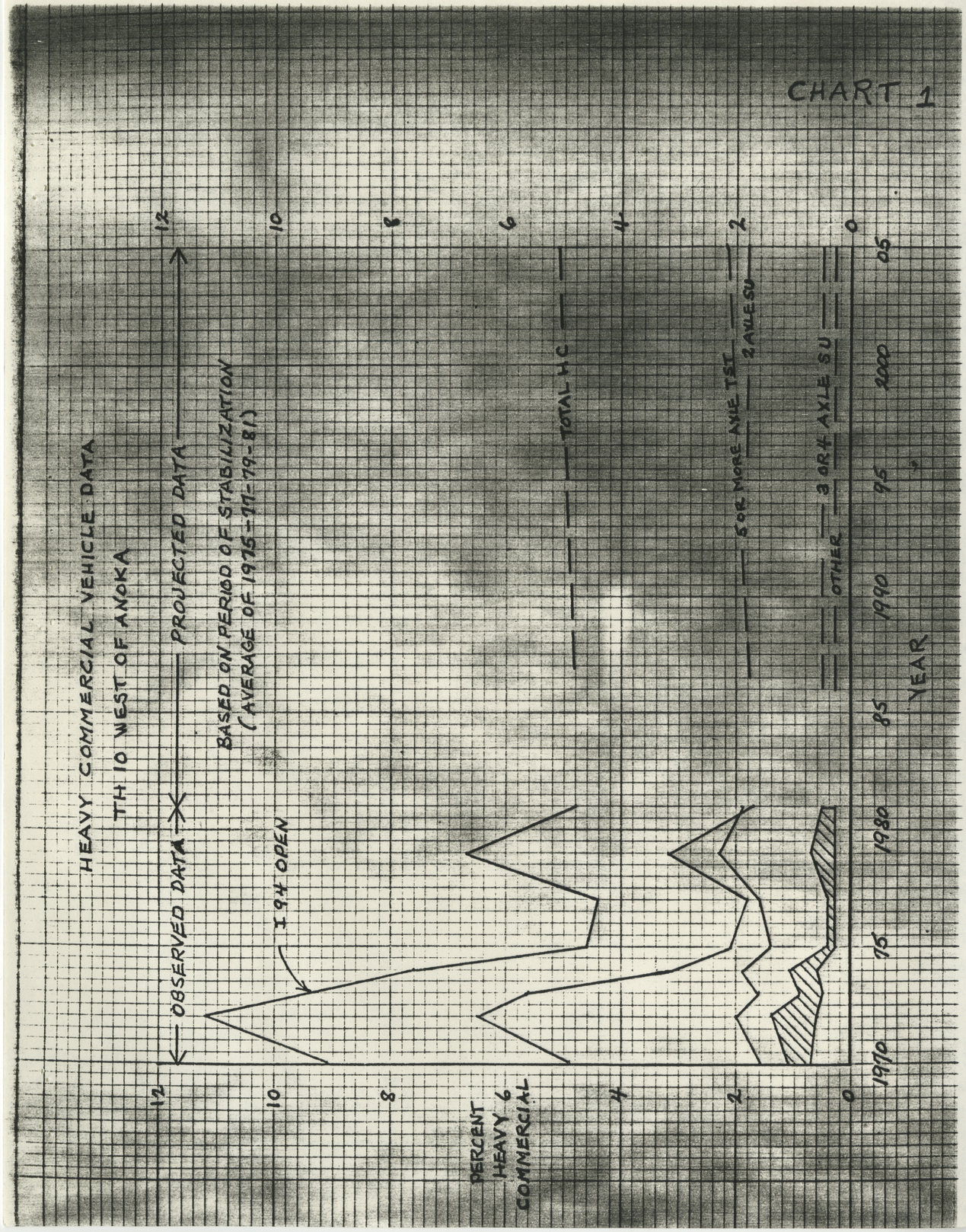
5) Completion of Osseo bypass and TH 610 river crossing.

TABLE 1

VEHICLE TYPE PERCENT OF ADT
AT TWO LOCATIONS
1980 DATA

| Vehicle Type | TH 169 S. of TH 252 in Champlin | % | TH 252 S.E. of TH 169 in Champlin | % | TOTAL | %* |
|---|---|---|---|---|---|---|
| 2 axle 6 tire | 286 | 1.9 | 224 | 2.0 | 510 | 1.9 |
| 3 or 4 axle S.U. | 122 | 0.8 | 86 | 0.8 | 208 | 0.8 |
| 3 axle TST | 11 | 0.1 | 6 | 0.1 | 17 | 0.1 |
| 4 axle TST | 28 | 0.2 | 16 | 0.1 | 44 | 0.2 |
| 5+ axle TST | 86 | 0.6 | 80 | 0.7 | 166 | 0.6 |
| Bus. & Trk.Trl. | 53 | 0.4 | 39 | 0.4 | 92 | 0.4 |
| Other | 14214 | 96.0 | 10449 | 95.9 | 24663 | 96.0 |
| TOTAL | 14800 | 100.0 | 10900 | 100.0 | 25700 | 100.0 |

* Used for year 2005 on TH 169 in Anoka.



Mn/DOT 2985 (3-78)

TABLE 2

# Traffic Forecast

SPAR 302

DESIGN OR FORECAST YEAR 2005

T.H.(s):

County:

Location:

Remarks:

→ T.H. 169, CSAH 12 to MAIN ST.

→ FERRY ST., MAIN ST. to T.H. 10

| | VEHICLE TYPE | SEGMENT NUMBER | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ↓ | | ↓ | | | | | | | |
| SINGLE-UNIT VEHS. | Cars & 4-tire trucks | 63514 | | 42240 | | | | | | | |
| | 2-axle dual-tire trucks | 1257 | | 836 | | | | | | | |
| | 3 axles or more | 529 | | 352 | | | | | | | |
| COMBINATIONS | 3- & 4-axle semis | 198 | | 132 | | | | | | | |
| | 5- (or more) axle semi | 397 | | 264 | | | | | | | |
| | Twin trailers | | | | | | | | | | |
| | Buses & truck-trailers | 265 | | 176 | | | | | | | |
| | AADT | 66160 | | 44000 | | | | | | | |
| | HCAADT | 2646 | | 1760 | | | | | | | |
| | DHV | | | | | | | | | | |
| | DIRECTIONAL DISTRIBUTION | 9-TON | 10-TON | 9-TON | 10-TON | | | | | | |
| | BESAL * | 3596 | 3991 | 2251 | 2499 | | | | | | |
| | CESAL * | 4537 | 5036 | 2840 | 3152 | | | | | | |

*(000) 100% IN DESIGN LANE